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(54) Abstract Title
Multilingual communication terminal

(57) This Invention relates to a multilingual communication terminal. In detail, a multilingual communication terminal that can convert or edit data put out to the printer / plotter or other device, or data put out to the computer proper and the optional display device by various application programs used in the computer, independently of the world characters which are taken in and used for description, and of the file format for the application software. It is equipped with a device driver that takes in print output data / screen output data to write it into the memory 11, a system component that translates the data into that of the standard format, and a viewer that allows multilingual notation, and generates industry/international standard data multiply to pass it to other electronic mail programs and Internet reading programs, and allow the prepared data to be read, and it writes data print-outputted or screen-outputted by the world software functioning at the platform technically disclosed into the memory 11 and store many different files in the standard file format to provide attached files for communication software, such as electronic mail software and Internet browser software.
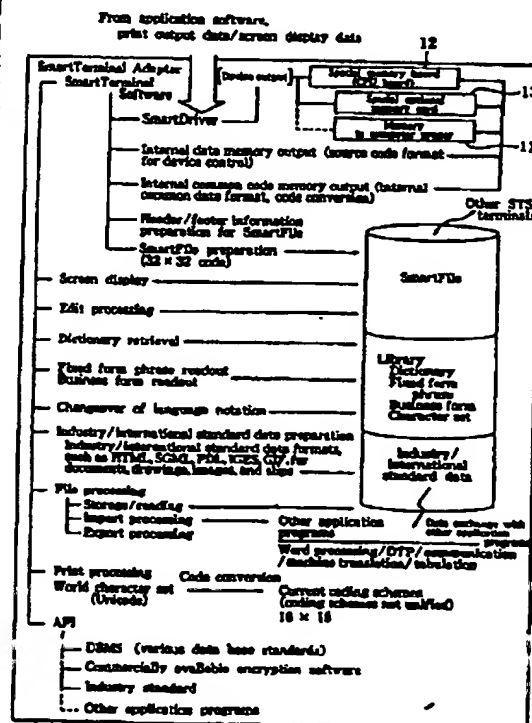
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MULTILINGUAL COMMUNICATION TERMINAL

This invention relates to a multilingual communication terminal, in detail, a multilingual communication terminal that can convert or edit data put out to the printer / plotter or other device, or data put out to the computer proper and the optional display device by various application programs used in the computer independently of the world characters which are taken in and used for description and the file format for the application software.

With the present invention described here, the term "world characters" used above is a generic term referring to the fonts for the world languages that are used on the screen and for printing. Said file format for the application software refers to a file format for use in data import / export (file input / output of data) that is configured so as to prevent the data exchange with the other application software unless the file formats adopted by both application programs agree with each other. Said data exchange refers to an exchange of data that has a printing image and can be read in the unit of page as with a document or slip displayed on the screen or put out to the printer. The word "data" used in the phrase "edit data" in the above paragraph refers to document data that can be prepared with a word processor program which can recognize the code in the unit of character; with the device of the present invention, the data is not bit-mapped binary information, and the word "edit" refers not only cutting and pasting of image information, but also character editing performed on the word processor.

In recent years, the information communication network represented by the Internet has come into wide spread use, and the social base that allows information exchange in the worldwide scale is being provided, which is developing the possibility of international data exchange. In every country, a number of hardware and software products to achieve information communication are used, and the digital data prepared there has many file

formats because many application programs are used, which provides a restriction that is not negligible for making of said data exchange through the network system.

Between computers that are of the same platform (the same model and same basic software) and use the same application software, data exchange can be performed with no problems, however, if the platform is the same, but different application programs are used, data exchange may not be provided.

For example, let's assume that an electronic mail document prepared with the JustSystem Ichitaro Ver. 8 for use with a Japanese word processor is to be imported (taken in) with the use of the Microsoft Internet Mail, an electronic mail program. The term "import (take in)" used in description of the present invention refers to file-inputting of data prepared with other application software or the same software.

The Microsoft Internet Mail software cannot import (take in) a document prepared with the Ichitaro Ver. 8 the file format for which is different.

Thus, in the present situation, to exchange data of a different file format, a file conversion program to make the file format the same must be provided, or a program based on the same file format must be used to prepare the same data again.

As another example, let's assume that a so-called virtual bookstore on the Internet puts up a notice of newly published books in three languages; Japanese, Chinese, and English. In this case, if the home page is read to obtain the information in Chinese from a computer incorporating Japanese and English character sets, the data expressed in Chinese cannot be read.

The virtual bookstore refers to a bookstore set up on the Internet.

Especially, to use Chinese, Korean, and Japanese in the English zone, which are Asian two-byte languages, some persons have purchased computers that can process each of these languages, which is an extreme case.

Further, many persons who are familiar with the computer have experienced unexpected time consumption or a trouble concerning such an item as text data having a different data format, an image file to be used with a DTP, and the file formats that can be attached to the electronic mail software to be used on the Internet. Text data that consists of character data and is different in delimiter code and character length is expressed as text data having a different data format as above, because data exchange cannot be made. The term "DTP" is an acronym of Desk Top Publishing, and a "DTP image file" here refers to an industry standard image file having a format such as GIF and JPEG, which are formats of image files that can be taken in with the DTP software.

New file formats have been devised, keeping abreast with the advance of the hardware and software technologies for information processing, which has allowed data processing in the new field, while, in the present situation, digital data that has prepared must be again prepared. Due to the difference in such factors as politics and culture, the character coding schemes have not been unified at present, thus it is supposed that the goal of "digital data once prepared is used repeatedly", which is proposed by the CALS (Commerce At Light Speed) information technology, cannot easily be attained with conventional technologies. To handle characters on the computer, every country and a computer system adopt a particular coding scheme, and the term "character coding scheme" used here is a generic term referring to the character codes used in the world. CALS is one of the latest terms, and in description of the present invention, it is used to realize the standardization of industry and international files, which is the basis for the CALS information technology.

Thus, even at the present stage, where the world characters can be used for data processing, it is impossible that the world characters can be viewed at the same time on a single computer, and that data having various file formats which is prepared with application programs, the number of which

is increasing in geometric progression, can be handled with ease. The more exact expression of the above phrase "the world characters can be viewed at the same time on a single computer" is that the fonts of the world languages can be displayed on the screen or with a printer, and with the device of the present invention, the basic technological concept is to provide the ability to data-process the fonts of the world languages.]

In consideration of the above conventional situation, the present invention is intended to offer multilingual communication terminals that allow exchange and editing of print output data and screen display data independently of the world characters which are taken in and used for description and the file format for the application software. The term "print putout data" refers to data that is printed and put out with the application software or the basic software. The term "screen display data" refers to data that is put out to the screen by the operation of the application software or the basic software.

They are equipped with a device driver that takes in print output data / screen output data to write it into the memory, system component that translates the data into that of the standard format, and a viewer that allows multilingual notation, and generates industry / international standard data multiply to pass it to other electronic mail programs and Internet reading programs, and allow the prepared data to be read, and they write data print-outputted or screen-outputted by the world software functioning at the platform technically disclosed into the memory and store many different files in the standard file format to provide attached files for communication software, such as electronic mail software and Internet browser software.

Accordingly, the present invention consists in a multilingual communication terminal comprising a device driver that takes in print output

data / screen output data to write it into the memory, a system component that translates the data into that of the standard format, and a viewer that allows multilingual notation, and generates industry / international standard data multiply to pass it to other electronic mail programs and Internet reading programs, and allow the prepared data to be read, and is characterized in that it writes data print-outputted or screen-outputted by the world software functioning at the platform technically disclosed into the memory space; and stores many different files in the standard file format adopted in the fields to provide attached files for communication software, such as electronic mail software and Internet browser software.

The meanings of the above print output data and screen output data are as previously stated. The meanings of the terms in the above paragraph are as follows. The term "device driver" refers to software that file-generates print output data and screen output data as data of the common format (which is the basic function of the device of the present invention), referring to two device drivers, one of which writes print output data into the memory rather than the printer, and in the other of which the basic software and the application software provide screen display while generating a file of the displayed data in the unit of one screen in the same way as that in which the word processor software would prepare it. The term "standard data format" is a generic term referring to the file formats providing the world standard and the industry standard. The term "system component" refers to one of the elements of the device of the present invention. The term "multilingual notation" refers to putting out a font of a language other than English to the screen or printer. The term "industry / international standard data" refers to data, such as a document, drawing, image, and graphic, of the file format as the world standard or that frequently used in the industry. The term "viewer" refers to a display program to display on the screen, retrieve, edit, or print a file stored in the device of the present invention. The term "attached file" refers to a file as which the electronic mail program transmits or receives application data.

The multilingual communication terminal may be adapted such that data which can be print-outputted and screen-outputted can be read with no restrictions with the simultaneous use of more than one character set regardless of the type of data, such as document, drawing, graphic, photograph, and slip, and yet regardless of the language and type of the character set used for notation.

The phrase "the character set used for notation" in the above paragraph means the font specified for screen display or printing.

The multilingual communication terminal may be characterized in that said device driver, the system component which translates internal data into that of the standard format, and the viewer which allows multilingual display, which compose the multilingual communication terminal, are embodied in any one of the forms of the following (1), (2), and (3), and are combined with a conventional software component to allow multilingual data exchange.

(1)   A combination of programs (special driver, system component for data translation, and viewer) to write data into the memory space in the computer.

(2)   A combination of programs (special driver, system component for data translation, and viewer) + special hardware to write data into the special option memory board or the special external memory box.

(3)   A combination of programs (special driver and viewer) + special CPU board (incorporating custom LSI system component for data translation).

The meanings of the above mentioned viewer is as previously stated. The meanings of the other terms in the above paragraph are as follows. The term "special driver" refers to a driver program offered to be specifically used with the device of the present invention, which stores print output data and screen display data as files of the common format. The term "system component for data translation" refers to software for converting data into that of the world standard format or the industry standard one from the internal common format file. The term "special option memory board" refers to a special memory board into which the print output data and

screen output data converted into files of the common format are put out (which is the basic function of the device of the present invention), which is inserted into the option slot in the computer proper. The term "special external memory board" refers to a special external memory box into which the print output data and screen output data converted into files of the common format are put out (which is the basic function of the device of the present invention), which is connected to the device of the present invention. The term "special hardware" is a generic term referring to the memory box, the memory card, printer, plotter, and computer board in which the system components of the device of the present invention are incorporated. The term "special CPU board" refers to a computer board in which the system components of the device of the present invention that provide a data processing function are incorporated.

The invention will now be described in more detail with reference to the accompanying drawing, the single Figure of which illustrates a system configuration chart for a multilingual communication terminal in accordance with one embodiment of the present invention.

The multilingual communication terminal offered by the present invention consists of a device driver that takes in print output data / screen output data to write it into the memory, a system component that translates the data into that of the standard format, and a viewer that allows multilingual notation, and generates industry / international standard data multiply to pass it to other electronic mail programs and Internet reading programs, and allow the prepared data to be read.

Unlike conventional device drivers for printers and modems, this device driver, one of the components, is designed to control virtual devices that can store print output data or screen output data as a file, in other words, various memory devices generating general-purpose data files, rather than to control a specific device.

Conventional device drivers are prepared for a number of models that are different in specifications, while the device driver of the present invention is offered for various peripherals that write print output data / screen output data into the memory.

The function of this device driver allows print output data and screen output data to be stored as a file on the memory in completely the same way as that in which it would be put out to the printer or plotter / display. The data at this stage is unified to the internal general-purpose data to be passed to the system component for data translation so that a general-purpose standard file is prepared. The print output data / screen output data are grammatically analyzed and stored as a common data file in the device of the present invention, and the above-mentioned internal general-purpose data refers to this data file. The above-mentioned general-purpose standard file refers to a world standard file or an industry standard file.

This general-purpose standard file adopts the Unicode table as a coding scheme, featuring multilingual processing and having a standardized data

format, and it can be read with the viewer.

This viewer offers the general-purpose standard file to an external system as the file output (export) function for electronic commerce, Internet, industry standard, and international standard by converting it to the system of a particular standard data format. The standard data format refers to the world standard format or the industry standard format.

Here, the procedure for a user of this multilingual communication terminal to prepare data and display on the viewer, and the flow of data processing will be briefly described on the basis of an actual example.

(Operation procedure on the transmitter side and flow of data processing)

1. The mail to be transmitted is prepared with a Chinese word processor (a Chinese-edition Microsoft Windows 95).

2. The terminal software, SmartTerminal Software, and the special device driver, SmartDriver, are installed in the multilingual communication terminal.

3. The model of the printer used is specified to the SmartDriver.

4. Print processing is made with the Chinese word processor.

5. The SmartDriver writes the data into the memory.

6. The translation system component translates this data into internal general-purpose data.

7. The viewer converts the internal general-purpose data into a general-purpose standard file, SmartFile.

8. The viewer file-outputs the general-purpose standard file, SmartFile, in the SGML format.

9. With the mail software, the SGML format file is transmitted to the customer in a distant place.

(Operation procedure on the receiver side and flow of data processing)

10. The customer who has received the SGML format file opens the file with the electronic mail software in the Netscape Navigator Ver. 2.0, an Internet browser. (It is assumed that the customer has no Chinese word

processor, and that the SmartTerminal Software is installed and a Chinese character set is loaded.)

11. Then, at the icon for the SmartFile, an attached file, the mouse switch was clicked to activate the SmartTerminal Software, which allowed the business document in Chinese to be read.

As shown in the Fig., the multilingual communication terminal of the present invention can be realized in more than one method according to the diversification of the purpose and configuration; one method is to temporarily store print output / screen output data in the memory area in the memory 11 inside the computer, and another method is to combine the memory area with a uniquely designed system component, such as the special memory board (CPU) 12, the special option memory card 13, the external memory board, and the custom LSI, for an increased data processing speed.

Methods can be divided into three broad general categories:

1. Software (special driver, system component for data translation, and viewer).

2. Software (special driver, system component for data translation, and viewer) + special hardware. (With the above method 1, data is written into the memory inside the computer, while with the method 2, data is written into the special option memory board or the special external memory box.)

3. Software (special driver and viewer) + special CPU board (incorporating system component for data translation). With the method 3, the system component for data translation is an custom LSI that is mounted on the CPU board.

As a result of taking the above series of data processing steps, the print and screen output images can be read with the viewer. The viewer operation menu allows selection of the monolingual display mode, which uses a specific language for display, the bilingual display mode, or the multilingual display mode, featuring that it is displayed with an arbitrary

world character set. The monolingual display mode refers to the mode in which only one of the languages, such as English and Japanese, is used for display and printing. The bilingual display mode refers to the mode in which English and another language, such as Japanese, Chinese, and French, are used for display on a single screen. The multilingual display mode refers to the mode in which English and other two or more languages [.7. or fonts can be used for display.]

The character set used here is offered by the CD-ROM or the special server system. In the special server system, the world character sets are accumulated in conformity with the coding scheme for the multilingual communication terminal of the present invention, and if the necessary character set is not provided in the multilingual communication terminal, an arbitrary character set can be downloaded by connecting to the special server system.

By transporting the system components of the multilingual communication terminal of the present invention to more computer systems having an open architecture, a multilingual terminal environment can be realized at the world level independently of the platform, which makes mutual data exchange possible. The computer system having an open architecture refers to a computer system which is loaded with a platform (basic software) whose technical specifications are disclosed. The platform refers to basic software whose technical specifications are disclosed, such as Microsoft Windows 95 and UNIX.

Here, by referring to the Fig., the functions of the components of the present invention and the flow of data will be described in detail.

The multilingual communication terminal of the present invention consists of the following components, and the functions of the components and the flow of data from the input of data to the processed data output are as follows:

The multilingual communication terminal of the present invention is

referred to as the STA (SmartTerminal Adapter), and in the following description, the components are expressed as STA Components, the special driver for STA as SmartDriver, and the standard data format for the STA coding scheme as SmartFile with the functions of these components being outlined in Table 1.

[Table 1]

Name of component (term described here) : outline of function
1. STA Component (0) : SmartDriver; special device driver
2. STA Component (1) : Data translation system component
3. STA Component (2) : Internal general-purpose data translation system component
4. STA Component (3) : SmartFile screen display system component
5. STA Component (4) : SmartFile generation system component
6. STA Component (5) : Industry / international standard data
   translation system component
7. STA Component (6) : Unicode-current code / current code-Unicode conversion system component
8. STA Component (7) : Language mode changeover system component
9. STA Component (8) : SmartFile header / footer page preparation system component
10. STA Component (9) : User's interface system component
11. STA Component (10) : SmartFile edit system component
12. STA Component (11) : STA dictionary / fixed form phrase / template retrieval system component

The STA Components in the above Table 1 will be described in detail here.
1. STA Component (0) : SmartDriver; special device driver
This STA Component recognizes the name of a print / screen output issued

by the application software. It reads the hardware information internally set, recognizes the writing address, receives data, and writes it into the memory from the address. The data format used is the source code for printer / display.

2. STA Component (1) : Data translation system component

This STA Component analyzes the source code in the unit of name / data, and replaces the data in the unit of page with the name set of the internal code. To the last page on which data is written, the same process is repeated to write data into the memory in the unit of page.

If data that cannot be analyzed is encountered, error information is fed back to the SmartDriver.

3. STA Component (2) : Internal general-purpose data translation system component

This STA Component converts the internal code format data prepared in the unit of page into internal general-purpose data (code / coordinate data, character attributes / vector information / line type / image data) to transfer it to the memory.

4. STA Component (3) : SmartFile screen display system component

This STA Component requests the SmartDriver of the data necessary to display the SmartFile on the screen, and receives the resolution, character code, and security information from it. Then the STA Component passes the data to the screen display software and activates it.

5. STA Component (4) : SmartFile generation system component

This STA Component requests the information necessary for processing of the following STA Components, and generates the SmartFile on the information. It receives the internal general-purpose data from the STA Component (2) to perform the following operations:

It receives the resolution / character code / security information from the STA Component (0) (SmartDriver).

It receives the display character code from the STA Component (7)

(language mode changeover system component), and read the font from the code table.

The header / footer page is prepared with the STA Component (8) (SmartFile header / footer page preparation system component), and added to before and after the data in file generation.

6. STA Component (5) : Industry / international standard data translation system component

With a name being specified by the STA Component (9), industry / international standard data is prepared from the original data SmartFile in the following flow. Here, it is assumed that the data is HTML, SGML, and IGES industry / international standard data. The number of files is assumed to be N (where N is an integral number, and 9999 at maximum).

(1) HTML conversion program

In accordance with the HTML grammar, the name code / data is analyzed to be converted, and written into the memory.

(2) SGML conversion program

In accordance with the SGML grammar, the name code / data is analyzed to be converted, and written into the memory.

(3) IGES conversion program

In accordance with the IGES grammar, the name code / data is analyzed to be converted, and written into the memory.

(N) Other industry data / international standard data conversion programs

In accordance with the grammar for a particular file format, the name code / data is analyzed to be converted, and written into the memory.

The above process is repeated, and execution of each program prepares an arbitrary file format. Then, the file is put out to the folder name (the storage area in the memory) specified by the STA Component (9).

7. STA Component (6) (Unicode-current code / current code-Unicode conversion system component)

This STA Component is activated when the STA Component (5) is

executed on the request by the STA Component (9).

The Unicode is data-processed as a common code between STA terminals, however, it is executed when it is converted into a particular coding scheme adopted by the other application program.

8. STA Component (7) : Language mode changeover system component

For a request by the STA Component (9), this STA Component offers a menu described for each language that can be processed. In accordance with the procedure as given in Table 2 below, the information is passed to the STA Component (3).

[Table 2]

Language/ font identification code	Name	Contents of data

0101
0201
0301
	English
	French
	German
		Operation guidance
		  Input request
		  Help screen
		  Pull-down menu

1001	Simplified character Chinese (CN-GB)	:
1002	Simplified character Chinese (HZ-GB)	:
1003	Simplified character Chinese (GBK)	:
1004	Traditional Chinese (BIG5)	
2001 2002 2003	Japanese (Ming type) Japanese (Gothic type 1) Japanese (Gothic type 2)	
3001 3002 3003	Korean (font 1) Korean (font 2) Korean (font 3)	

For example, when the language / font identification code 2002 is selected on the request by the STA Component (9), the data (character font) of the Gothic type character set in the Japanese coding scheme is passed to the STA Component (3). When any other language / font identification code is selected, the same data process is made.

9.   STA Component (8) : SmartFile header / footer page preparation system component

When the STA Component (4) is executed, this STA Component prepares header / footer information as given in Table 3 below to update the header / footer information before and after the data.

[Table 3]

<Header information>	<Footer information>
Language / font identification code (more than one setting possible) Resolution (X value and Y value) Security information (general / confidential / top secret) File length (number of pages and capacity) Platform name Application program name Data preparation terminal identification code Version information	SmartFile transmission and reception history 1. Date of preparation / time, min, sec STA terminal identification code 2. Date of preparation / time, min, sec STA terminal identification code 3. Date of preparation / time, min, sec STA terminal identification code 4. Date of preparation / time, min, sec STA terminal identification code 5. Date of preparation / time, min, sec STA terminal identification code : :

10.   STA Component (9) : User's interface system component

This STA Component gives an operation instruction to other STA Components.   On the operation instruction, the STA Components (0) to (8)

function mutually and organically to provide the data processing required.

11. STA Component (10) : SmartFile edit system component

On the instruction from the STA Component (9), this STA Component makes edit processing, such as cutting and pasting of more than one SmartFile, and pasting of a dictionary / fixed form phrase / template display data.

12. STA Component (11) : STA dictionary / fixed form phrase / template retrieval system component

By specifying a term / fixed form phrase to the SmartFile being displayed, this STA Component retrieves the data expressed in a particular language, and displays it.

[Aspects of Embodiment of Present Invention]

Here is a description of the embodiment aspects of the present invention.
(1st embodiment aspect)

By installing the SmartTerminal Software in the English-edition Microsoft Windows 95, a multilingual processing environment was created, and a Chinese word processor was used to prepare a business document on the traditional Chinese character set. Then, a mail transmission process was performed by taking the following steps:

Here, the transmission side is denoted as the terminal 1, and the reception side as the terminal 2. At the terminal 2, the Netscape Navigator Ver. 2.0 and the SmartTerminal Software are installed with the English-edition Apple MacOS.

Step 1: At the terminal 1, the SmartTerminal Software was activated.

Step 2: To perform the process for printing, the printer model was set on the SmartDriver.

Step 3: The Chinese word processor was activated to put out the prepared mail to the specified SmartDriver.

Step 4: The business document was stored in the SmartFile format for the SmartTerminal Software.

Step 5: The Microsoft Internet Mail was activated to write a notice, which was transmitted to the mail address of the terminal 2 with the prepared business document transmitted as an attached file.

Step 6: At the terminal 2, the Netscape Navigator Ver. 2.0 was activated, and the electronic mail software was used to receive the business document from the terminal 1.

Step 7: At the icon for the attached file, the mouse switch was double-clicked to activate the SmartTerminal Software, which allowed the mail to be read in Chinese.

(2nd embodiment aspect)

The Netscape Navigator Ver. 2.0, a Japanese kit, a Korean kit, a Chinese kit, and the SmartTerminal Software are installed with the English-edition Apple MacOS. By taking the following steps, a home page advertisement written in Japanese, Korean, and Chinese for mail order sale of books was prepared on the Internet.

Step 1: The English-edition Apple MacOS was activated, and then the Japanese kit activated.

Step 2: The book names were written in both English and Japanese.

Step 3: The Korean kit was activated to prepare a book names list with the Hankul alphabet, and store it as a file.

Step 4: The Chinese kit was activated to prepare a book names list by use of the Chinese simplified characters, and store it as a file.

Step 5: The SmartTerminal Software was activated to make the SmartDriver active (bring it into the state in which the functions can operate).

Step 6: The English, Japanese, Korean and Chinese document files were processed for printing by setting the print processing environments for the respective kits on the SmartDriver.

Step 7: The home page original was prepared in three different SmartFile formats so as to be read with the viewer in the SmartTerminal Software.

Step 8: By using the edit functions of cut and paste of the SmartTerminal Software, a home page advertisement written in four languages of English, Japanese, Korean and Chinese was prepared, and this SmartFile format data was stored as a file with a single document name.

Step 9: The industry / international standard data preparation program in the SmartTerminal Software was activated to convert the prepared SmartFile format data for preparing a document in HTML, the home page description language.

(3rd embodiment aspect)

At the terminal 1, the Internet Mail and the SmartTerminal Software are installed in the Microsoft Windows 95, and an illustrating drawing to be contributed to a magazine is prepared in the data format DXG with the Autodesk AutoCAD, and the original is sent to the mail address of the terminal 2 on the reception side in the magazine company. The above-mentioned DXG is the standard format for the AutoCAD, a CAD program developed by the Autodesk, Inc. in USA, providing practically the industry standard in the CAD field.

At the terminal 2, an original is prepared by use of the Adobe Photoshop that functions with the Apple MacOS. In the computer, the Netscape Navigator Ver. 2.0 is incorporated.

By taking the following steps, the document of the data format DXG that is prepared with the Autodesk AutoCAD is data-processed so that it can be file-inputted into the Adobe Photoshop.

Step 1: At the terminal 1 on the transmission side, the system is started up to activate the Microsoft Internet Mail, the SmartTerminal Software, and the Autodesk AutoCAD, respectively.

Step 2: The AutoCAD was used to prepare drawing data, and store it as a file.

Step 3: The model name of the X-Y plotter, the output device, is specified to the SmartDriver.

Step 4: The drawing data was put out to the SmartDriver.

Step 5: The drawing data was converted into a SmartFile so as to be stored as a file.

Step 6: The Microsoft Internet Mail was activated to transmit the prepared SmartFile to the mail address of the terminal 2 as an attached file.

Step 7: At the terminal 2, the Netscape Navigator Ver. 2.0 was activated to receive the drawing data with the attached mail software.

Step 8: With the SmartTerminal Software being activated, the industry standard data preparation program was executed to convert the SmartFile into the image data format PICT (Quick Draw Picture Format) and store it as a file in the folder SMART.

Step 9: The Adobe Photoshop was activated, and the import function of the same software was used to file-input the image data having a folder name of SMART.

Step 10: The image data taken in was cut and pasted to the photo data as a magazine document for edition. This data was stored as a file, and put out as an artwork.

With present invention as described above, documents, drawings, graphics, photographs, slips, and others, which are digital data prepared with various computers used in the world and expressed with characters of various languages, can be mutually data-exchanged by use of the network, and in addition, edition of these data can be realized.

The present invention described above in detail that has sufficient novelty and inventive step can offer multilingual communication terminals with which drawings, graphics, photographs, slips, and others, which are digital data prepared with various computers used in the world and expressed with characters of various languages, can be data-exchanged between different

platforms and between different application programs in the form of an print output or screen output by use of the network, and in addition, edition of these data can be realized.